



FIFTH ANNUAL 1894
CATALOGUE . .

KEYSTONE ... WOVEN WIRE



FENCES



GIVING A BRIEF DESCRIPTION,
WITH ILLUSTRATIONS,
OF THE VARIOUS STYLES.



MANUFACTURED UNDER THE PROTECTION OF
SOMMER'S
PATENT
OF OCT. 29, 1889, BY THE

KEYSTONE WOVEN WIRE FENCE CO.,
(INCORPORATED)

TREMONT,

NINTH EDITION.

TAZEWELL CO., ILL.

The Keystone Woven Wire Fence Co.

PETER SOMMER, Pres.

JOHN SOMMER, V. Pres.

P. W. SOMMER, Sec. & Treas.

Established 1889.

Incorporated 1892.

Paid up capital \$150,000.

Organized under the laws of the State of Illinois.

Office and factory at Tremont, Illinois.

February 1st, 1894.

Dear Sir:—

We take pleasure in presenting our fifth annual catalogue and hope to receive your continued favors, as well as those of many new customers. If there is anything connected with our business that you do not understand, we will be pleased to answer your further correspondence.

Thanking you for your liberal patronage in the past, and awaiting pleasant business relations in the future, we are,

Yours with compliments,

KEYSTONE WOVEN WIRE FENCE CO.

Tremont, Tazewell Co., Illinois.

FOR SALE BY W. S. MARSELLUS,
210 E. Main Street.

Rochester, N. Y.

THE KEYSTONE WOVEN WIRE FENCE

REALIZING, as do many farmers, the necessity of a change in farm fencing, and well knowing the unavoidable drawbacks of either barbed wire, board or rail fences, the inventors conceived the idea of an all smooth wire fence, and they soon learned that to be effective, the wires must be combined by means of stays. After experimenting with many different forms of stays (most of which were either to expensive or not effective), they succeeded in building a fence which they consider well worth farmers' and stock-growers' attention.

HOW IT IS MADE.

The top and bottom bar is made of two No. 12 wires twisted together as shown in the following cut, which is natural size.

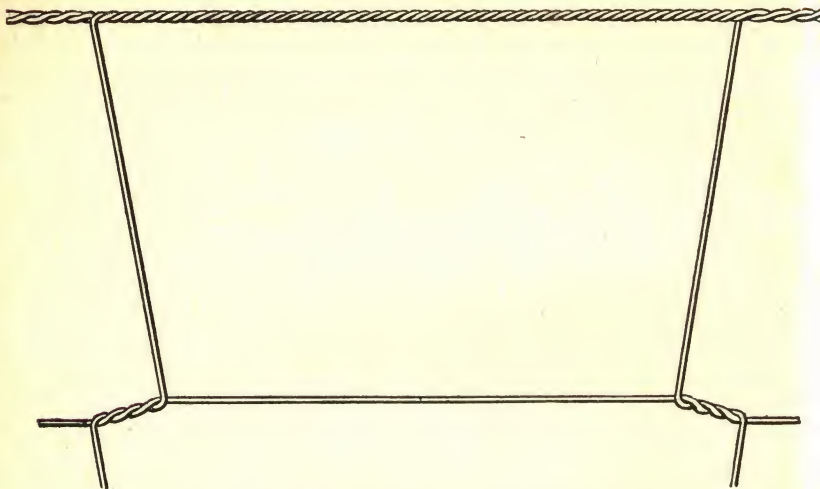


*Top and
Bottom Bars.*



*Intermediate
and
Cross Bars.*

The intermediate bars and also the cross or stay bars are made of No. 12 wire, which is also shown natural size just below the cable. By reference to the illustrations you will notice how the stay wire passes from the top cable bar (being firmly united with the intermediate bars by a short cable twist as is shown in the following illustration)



and so on down to the bottom cable bar, and is firmly twisted into that, till it again passes upward in a like zig-zag course to the top cable bar and is again twisted into that and so on continuously, thus forming a smooth, harmless fence, composed of almost indestructable Keystone shaped meshes.

SOME OF ITS ADVANTAGES.

1. It breaks no wind, and therefore requires less posts than wooden fences.

2. It will not cause snow to drift and blockade gates, lanes and highways.

3. It has no tendency to sag between posts from the effect of hard stretching.

4. Being made of the best galvanized steel No. 12 wire we can procure, it is very durable.

5. Having a scientific form of mesh it is very elastic and is not effected by heat or cold (see page 19 and 20)

6. It is effectual yet harmless to stock. With our stretchers it is easily put up and kept tight, which is the main point in wire fences.

AS A HOG AND PIG FENCE.

It has often been declared impossible, or nearly so, to make a fence that will turn small pigs. However, experience has taught that a good 'woven wire fence' is the boundary line of their vast dominion.

AS A POULTRY FENCE.

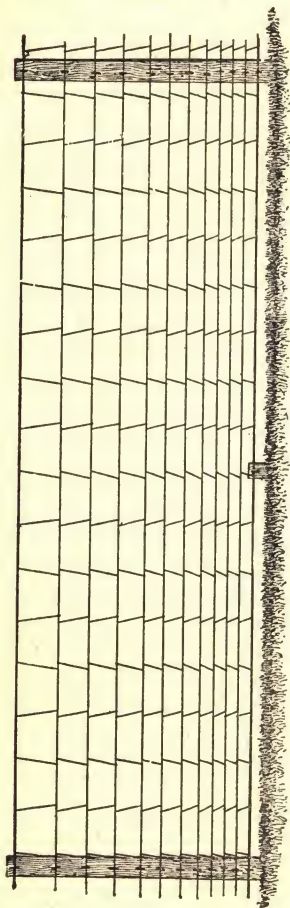
While we do not call this a poultry fence, we may yet say, that it is quite amusing to see a hen walking back and forth, occasionally comparing the size of the mesh and her neck. Wherever it is used for this purpose a 10 or 12 inch base board should be used to prevent small chickens from getting through as the wayward old hen would be sure to follow. As there is no railing necessary on this fence fowls can not see how high it is, and therefore do not venture to fly over it (we recommend our lawn fence for this purpose.)

A CONVENIENT PORTABLE FENCE.

You will readily see its advantages for this purpose, in fact, this is what it was originally designed for. It can be rolled up into a comparatively small bundle for convenient transportation from place to place.

With a good anchor post at each end, the middle or intermediate posts may beset 15 to 30 feet apart. This is a saving of both time and posts. The saving of time is quite important, as a fence may need to be moved several times in a year. For instance, in the spring it may be used between a meadow and a pasture; after harvest it may be used between growing crops and a stubble-field, and lastly in the autumn and winter between corn-stalk fields. When the posts are set far apart one or two stakes must be driven between each post and the lowest cable stapled carefully to the stake.

Never should the lowest cable be spanned more than 8 to 10 feet without fastening to the stakes, otherwise hogs will root under it and pry upwards and sidewise till they finally effect a passage. For the same reason we caution you to fasten it nearer the ground than the width of the lowest space in your fence. This does not pertain to fences for horses and cattle, which may be put 18 to 20 inches from the ground.



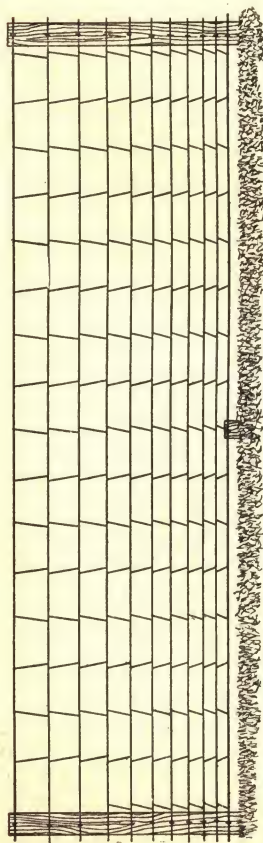
Twelve Bar.

58x12. This is the same as the 49-inch fence, only it has an additional bar at the top. The spaces between the horizontal bars are $2\frac{7}{8}$, $2\frac{7}{8}$, $3\frac{3}{8}$, $3\frac{3}{8}$, 5 , $5\frac{1}{2}$, 6 , 7 , 8 and 9 inches. Placed two inches from the ground, it stands five feet high. This is just the thing for those who do not like the barbed wire above the fence.

Price **73 cents per rod**

We also make a fence the same as the above, with the stays only six inches apart. Price furnished on application.

Six-inch mesh fencing is made to order only.



Eleven Bar.

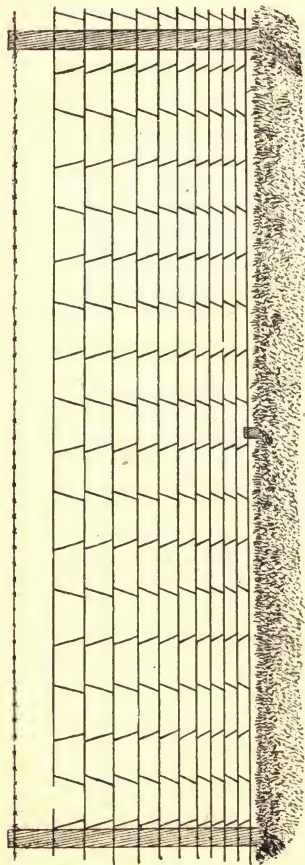
55 x 12. This is the same as the 10 bar 46 in. fence, only it has an additional bar at the top. The spacing is $2\frac{7}{8}$, $3\frac{3}{8}$, $3\frac{7}{8}$, $4\frac{3}{8}$, 5, $5\frac{1}{2}$, 6, 7, 8 and 9 inches. Placed 2 inches from the ground, it stands 4 ft. 9 inches high.

Where the 49 inch fence is not considered high enough, this style may be used without materially adding to the cost.

Price **68c. per rod.**

We also make a fence the same as the above, with stays only six inches apart. Price furnished on application.

Six inch mesh fencing is made to order only.



Eleven Bar

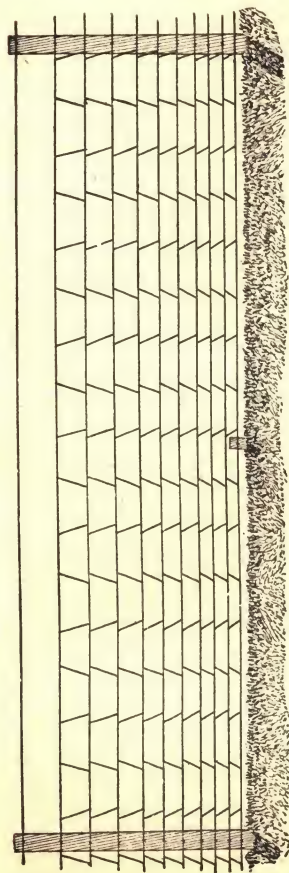
49x12. This fence is the same as the standard stock fence, only it has another wire added to the bottom of it. This gives it two spaces of only $2\frac{7}{8}$ of an inch at the bottom and the larger spaces are consequently farther beyond the reach of small stock. It is 49 inches high, placed 2 inches from the ground, and a barbed wire or cable 10 inches above it. It makes a fence 5 feet and 1 inch high. It is particularly adapted for farm yard fences and wherever a high fence is desirable.

Price..... 67 cents per rod

The price here given does not include the extra wire shown at the top.

We also make a fence the same as the above, with the stays only six inches apart. Price furnished on application.

Six-inch mesh fencing is made to order only.



Ten Bar.

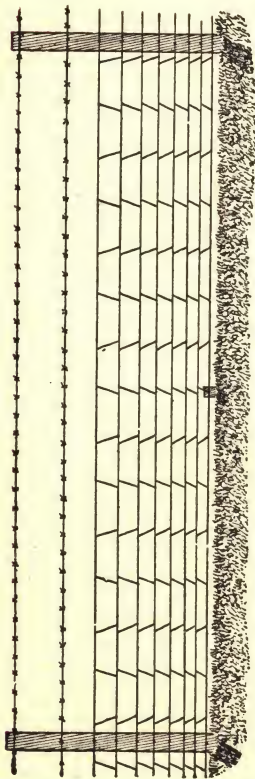
46 x 12. This is our Standard Stock Fence. We sell more of this style than any other, as it is the most practical fence for general purposes, such as pasture, field or road fences. It is 46 inches high, placed 2 inches from the ground, and a barbed wire or cable 10 inches above it. It makes a fence that stands 4 feet 10 inches high. The distance between the horizontal or long wires is $2\frac{1}{2}$, $3\frac{3}{8}$, $3\frac{3}{8}$, $4\frac{3}{8}$, 5, $5\frac{1}{2}$, 6, 7, and 8 inches. The distance between the stays or up and down wires is 12 inches.

Price **60 cents per rod**

The price here given does not include the extra wire shown at the top.

We also make a fence the same as the above, with the stays only six inches apart. Price furnished on application.

Six-inch mesh fencing is made to order only.



Eight Bar.

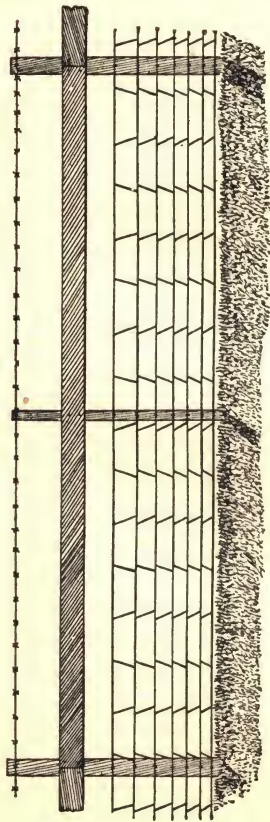
28x12. This fence is preferred by some to the one shown on the following page, as it has one more wire at the bottom, it is 28 inches high and placed 2 inches from the ground, and a barbed wire 10 inches above the fence, and another 12 inches above that, makes a fence 4 feet 4 inches high. The spaces between the horizontal wires are as follows: 2 $\frac{7}{8}$, 2 $\frac{7}{8}$, 3 $\frac{3}{8}$, 4 $\frac{3}{8}$, 5, 5 $\frac{1}{2}$; the distance between stays is 12 inches.

Price **49 cents per rod**

The price here given does not include the barbed wires shown at the top.

We also make a fence the same as the above, with the stays only six inches apart. Price furnished on application.

Six-inch mesh fencing is made to order only.



Seven Bar.

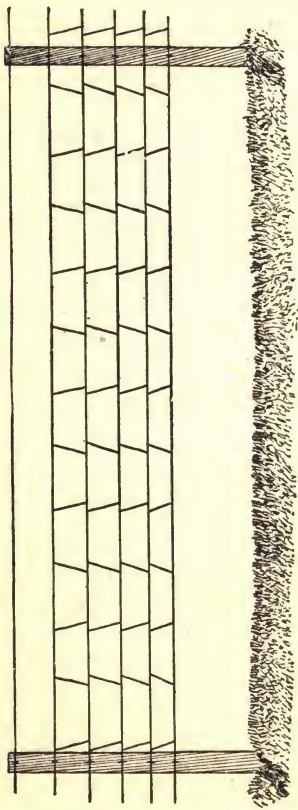
25x12. This fence is preferred by many because stock can see it more readily than an all wire fence; although it has the drawback that a board will rot, and sometimes it will break as would any board fence.

However, let everybody have their choice. This style of fence is sometimes used beside hedge fences to make them hog tight. It is 25 inches high and placed 2 inches from the ground and a board 7 inches above the fence, and a barbed wire 10 inches above the board makes a fence 4 feet and 2 inches high. The spaces between the horizontal wires are as follows: $2\frac{7}{8}$, $3\frac{3}{8}$, $3\frac{7}{8}$, $4\frac{3}{8}$, 5, $5\frac{1}{2}$; the distance between the stays is 12 inches.

Price..... 45 cents per rod

*The price here given does not include the extra wire and board shown at the top. We also make a fence the same as the above, with the stays only six inches apart. Price furnished on application.

Six-inch mesh fencing is made to order only.



Five Bar.

30x12. This is the cheapest fence you can get, and where a fence for horses and cattle only is wanted it answers the purpose very well. It is 30 inches high, and placed 20 inches from the ground, and a barbed wire or cable 12 inches above it; it makes a fence 5 feet 2 inches high. In case it should be desirable to have the fence hog-tight, it could easily be made so by stretching some of the 25-inch fence below it for the time it may be necessary. The spaces are 6, 7, 8 and 9 inches. The distance between the stays is 12 inches.

Price **39 cents per rod.**

The price here given does not include the extra wire shown at the top.

We do not furnish this style with stays only six inches apart, as it is intended only for horse and cattle fencing.

SPECIAL STYLES.

In the foregoing pages we have illustrated and described the styles most commonly used, but following we will describe a few styles (without illustrations) which are sometimes called for. Customers who can meet their wants just as well with the other styles should not order these, as we do not always keep them in stock.

Ten Bar.

41x12. This fence is the same as the 49-inch fence, only the top wire is left off. Distance between the horizontal wires is 2 $\frac{7}{8}$, 2 $\frac{7}{8}$, 3 $\frac{3}{8}$, 3 $\frac{3}{8}$, 4 $\frac{3}{8}$, 5, 5 $\frac{1}{2}$, 6 and 7 inches.

Price.....60 cents per rod.

Nine Bar.

38x12. This is the same as the standard stock fence with the top wire left off. This will make a good sheep fence. The distance between the horizontal wires is as follows: 2 $\frac{7}{8}$, 3 $\frac{3}{8}$, 3 $\frac{3}{8}$, 4 $\frac{3}{8}$, 5, 5 $\frac{1}{2}$, 6 and 7 inches.

Price.....55 cents per rod.

Eight Bar.

31x12. This is the same as the 25-inch fence, only it has an additional wire at the top. This style has been used extensively in the northwest as sheep fencing. Distance between the horizontal wires is as follows: 2 $\frac{7}{8}$, 3 $\frac{3}{8}$, 3 $\frac{3}{8}$, 4 $\frac{3}{8}$, 5, 5 $\frac{1}{2}$ and 6 inches.

Price50 cents per rod.

Six Bar.

36x12. This is the same as the fence shown on page 9, only it has an additional wire at the bottom, making it 36 inches high. This should only be used as a stock fence, and need not be placed nearer than 20 inches from the ground.

Price.....44 cents per rod.

We can furnish all the above styles with stays only 6 inches apart excepting the 6 bar fence,

A WORD TO THE WISE.

We notice that some of our customers are putting up our 46-inch fence without a cable or barbed wire above it. This is not what we recommend, and if it does not give satisfaction it is not our fault. If you do not want an extra bar above your fence, you should use our 12-bar 58-inch fence. A wire fence, to give satisfaction in turning horses, etc., should stand $4\frac{1}{2}$ to 5 feet high.

LENGTH OF ROLLS.

(Field Fencing.)

The fence comes from the machine in neat compact rolls of 10, 20, 30 and 40 rods in length; 40 rods of standard stock fence makes a roll about 47 inches long and about 30 inches in diameter; this length of roll is the most convenient for general use and should be ordered exclusively, except when some of the other lengths are more convenient to fit the place to be fenced.

Our local agents can cut the fencing to suit their customers, charging enough for cutting to pay the probable loss of some of the remnants.

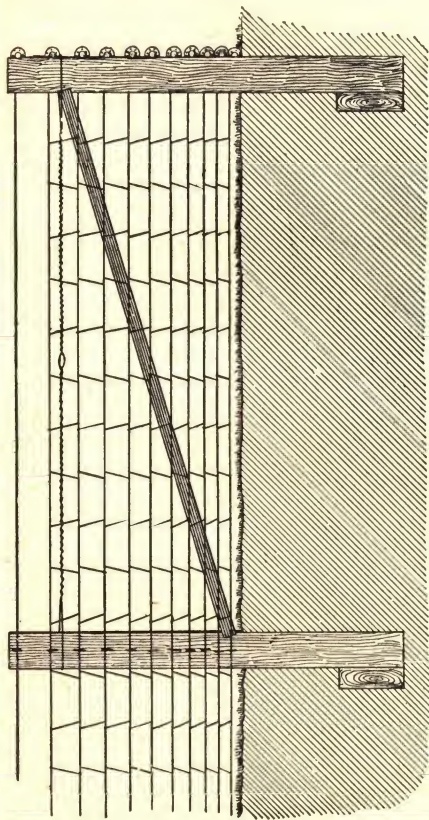
THE CABLE.



Natural Size.

The above cut shows the cable, (which is shown on top of all our fences where no barbed wire is shown). It is made of three No. 12 wires twisted together. We have found it necessary that either this or a barbed wire should be used above the woven wire to prevent stock from bearing down upon the fence and deforming it. Furnished on reels like barbed wire, in lengths of 40 and 80 rods; we can also furnish cable wire in bundles of 10 or 20 rods. Do not call for special lengths.

Price 6 cents per rod



HOW TO PUT IT UP.

Anybody can put it up who will follow these directions. It is not necessary that the end post be thicker than a common fence post, but it should be longer. First make a mark on the end post $3\frac{1}{2}$ feet from the bottom end, and lay the post on the bundle of fence, being careful to bring the mark even with the bottom cable; then mark every wire, and make a mortise (as shown on page 17) at every mark; then set the post in the ground deep enough that the bottom of the lowest mortise will be even with the ground. The second post should be set nearly as deep as the first, and a 4x4 wooden brace should be set into a notch even with the ground on the second post, extending into a corresponding notch about $3\frac{1}{2}$ feet above the ground on the first post, and a wire brace should be put on about $3\frac{1}{2}$

feet from the ground, as shown in cut. This forms a very solid anchor. The first two posts should be well stamped, as a wire fence is the same as a cable bridge—if the end pieces are poorly constructed, the whole bridge is a failure. The best way to put on the wire brace is to cut a wire of sufficient length, and wrap once around the second post; then pass forward and wrap once around the first post; then pass backward and wrap once more around the second post, and twist the two ends together. In this way you have two wires running parallel, one on each side of the post; then place a stick between the two wires, and revolve it so as to twist them together, till they become quite tight and the posts stand firm. Always put the wooden brace in before you put on the wire braces. A crosspiece, 2 feet long, 6 inches wide and 2 inches thick should be spiked on the back of the first and second post as near the bottom end as possible to prevent the posts from lifting up or turning in the ground. By all means do this job as thorough and complete as possible and do not neglect the details however trifling they may seem, as on this depends the future usefulness and beauty of your fence, as well as our success in selling more fence in your vicinity. Now open the bundle and roll it away a few rods and pass all the wires through the holes in the end post, and fasten the two large stretchers to the bottom and top cables by passing the cable through the largest hole in the stretcher and bending a small hook on the wires. Then unroll the whole length of the roll of fence and hang it on the posts with staples and draw as much of the slack to the opposite end post as you can with a barbed wire stretcher or any other means you have, and fasten to the opposite end post, which should have been set and braced as firmly as the one the stretchers are put into; then wind up the two large stretchers till the cables become reasonably tight. (It is also important to frequently examine the fence while stretching to ascertain that no staple prevents a stay from being drawn toward the stretcher post.) Then fasten all the stretchers and tighten a little at a time till the fence becomes thoroughly tight; then staple first the top cable, being careful to follow the average level of the ground; then staple downwards to the bottom, being careful to observe the following rule:

Never drive the staples entirely down, but always allow plenty of space to let the wire slip freely toward the stretchers.

The stretchers should be put in every 40 rods or as often as a gate or corner may make it necessary; should the stretchers become full of wire and the fence not yet tight, remove one at a time and remove the unnecessary wire.

Never span the lower cable more than 8 feet without fastening to a stake or post.

OUR TERMS.

All orders not accompanied by cash will be sent with bill of lading. Always designate to what bank and at what place you wish the bill of lading sent. In the absence of such information we will send bill of lading, draft and instructions to such banker and at such place as we think will be most convenient to our customers. The drafts are made payable thirty days from date. If you pay the draft within ten days from the date of shipment you are entitled to 2 per cent. discount, provided that it is not already allowed in the bill. You must "accept" or promise to pay, the draft before the banker can deliver the bill of lading to you.

HOW TO REMIT.

If possible send Chicago or New York Exchange, but if more convenient to the sender, use Drafts on other points. When it is not possible to send a draft, send an Express Money Order.

Make all Drafts, Checks, etc., payable to the order of the Keystone Woven Wire Fence Co. When drafts are made payable to one of the officers it often causes delay, as some of them may be away from the office.

Registered letters, are at the sender's risk, and are not desirable as a registered letter does not pass through the mail as rapidly as a common letter. Always inclose a letter with your remittance stating whether you send a draft or an express order and what amount, etc. If you do not get a receipt within 5 or 10 days, write to us, as the money may not have reached us at all, and the sooner it is looked up the less delay; we send a receipt to every customer as soon as we receive a remittance from him.

WHO PAYS THE FREIGHT?

We are sometimes asked to deliver our fence free on board the cars at various points; the reason that we can not do this is very plain, as the price of our fencing is very low; and should we decide to pay the freight, we would be obliged to add enough to the retail price of our fence to cover all freight charges and additional labor in our shipping department.

Another reason for our not paying the freight is, there are many points, to which we can not get freight rates in advance; in that case we must send the fence and the customer must pay the freight charges and send the freight bill to us on receipt of same. We would refund the

money, but all this would cause delay and additional expenses. The man that uses the fence is the man that gets all the benefit out of it, and it is plain that he must pay all the expense of making the wire and weaving it into fence, as well as the cost of transportation, whether he pay it to the manufacturer of the fence or to the railroad company as freight charges. Our agents can not pay the freight, as the commission paid them is only calculated to reward them for their efforts in selling the fence and making it publicly known. When our agent approaches you and calls your attention to our fence he is doing you a fine favor, for had you not known of our fence you might have bought an article that would not suit you as well. We have often heard men say: "I wish I had known this a little sooner; I have just put up — rods of — fence, but I like this much better." We know of some advertisers who have won the good will of their customers with the nice-sounding story, "We pay the freight," but the idea that any manufacturing company will pay the freight on their goods without adding a comparative amount to their list price, is just as absurd as that somebody is going to give you something for nothing.

COST OF FENCE WHEN PUT UP.

In the following figures we endeavor to show the relative cost of the various methods of fencing when put up:

160 Rods of Five Boards High Fence, Posts 8 Feet.

| | |
|--|----------|
| 5 boards, at \$17 per 1,000 feet..... | \$115.60 |
| Expense of hauling seven loads five miles..... | 8.75 |
| 330 posts, at 12 cts. each..... | 39.60 |
| Hauling and setting posts..... | 16.00 |
| Total..... | \$179.95 |

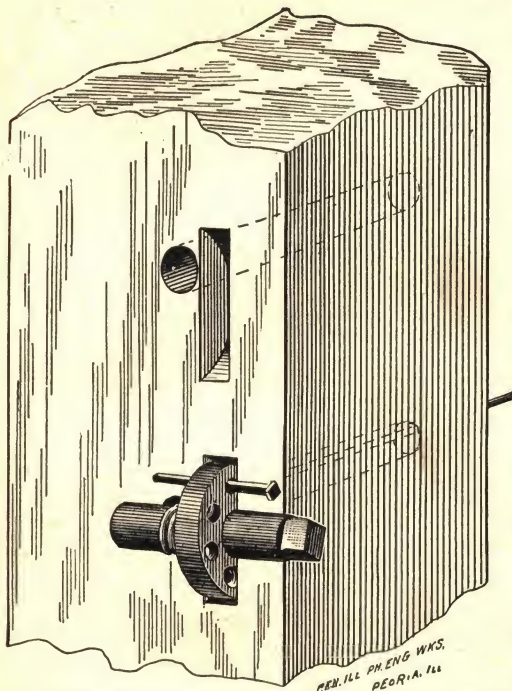
160 Rods Three Boards and Two Barbed Wires, Posts 8 Feet.

| | |
|--------------------------------------|----------|
| 3 boards at \$17 per 1,000 feet..... | \$69.36 |
| Expense of hauling four loads..... | 4.50 |
| 330 posts, at 12 cts. each..... | 39.60 |
| Hauling and setting posts..... | 16.00 |
| 400 pounds barbed wire..... | 18.00 |
| Total..... | \$147.46 |

160 Rods of Keystone W. W. Fence, Posts 16½ Feet.

| | |
|--|----------|
| 160 Rods of standard stock fence, at 60 cents per rod..... | \$96.00 |
| Expense of hauling..... | 1.25 |
| 160 posts, at 12 cts. each..... | 19.20 |
| Hauling and setting posts..... | 8.00 |
| 200 pounds cable or barbed wire..... | 9.00 |
| 160 stakes driven in the ground..... | 1.60 |
| Total..... | \$135.05 |

OUR STRETCHERS.



First, bore a $\frac{3}{8}$ or $\frac{1}{2}$ -inch hole about $1\frac{1}{2}$ inches from the edge of the post; then make the mortise (with a narrow chisel) just wide enough to receive the rim of the stretcher freely. Care should be taken to have the mortise deep enough that the stretcher will rest on its journal, not on its rim. Be careful to have the center of the mortise a little below the center of the hole. In applying the stretcher to the fence, pass the wire through the hole in the post, and bend a small hook on the end of the wire, and hook it in the largest hole in the stretcher; then wind up with a common wrench, and insert the nail as shown in the cut.

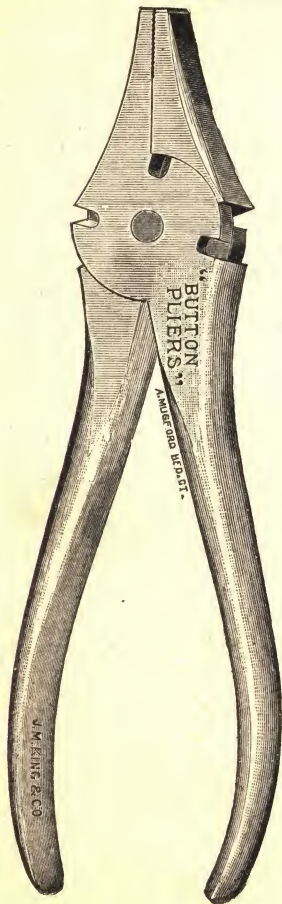
These stretchers are furnished free with every 40 rod roll; but they are sent with every roll less than 40 rods, and a charge of $3\frac{1}{2}$ cents apiece is made for them.

They are made in two sizes—small size for lawn fence and the intermediate bars in field fencing, and large size for the top and bottom bars in field fencing.

Price, large size.....5 cents Each.

Price, small size.....4 cents Each.

TOOLS FOR PUTTING UP FENCE.

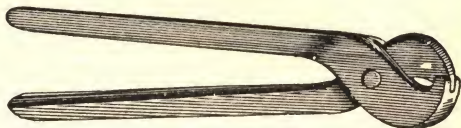


This cut shows Button's Combined Wire Cutters and Pliers; warranted cast steel.

So far as we know this is the best tool of its kind. We use them exclusively.

Price for 8-inch Pliers.....**95c.**

By mail.....**\$1.00**



This cut shows our Wire Holder, which is designed for use with the Combined Pliers and Cutters for making splices.

It also has an angle grip by which the end of a wire can be held very firmly with a little pressure on the handles. It is made of cast iron.

Price of an 8-inch Holder.....**25c.**

By mail.....**40c.**

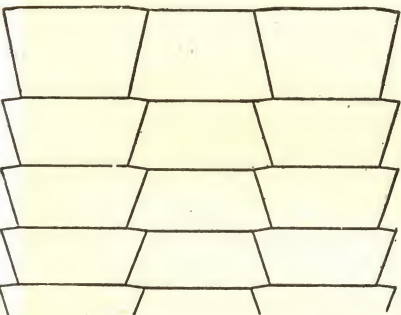
In placing these tools before you it has not been our aim to dispose of them as a business, but as we know them to be very good tools for working with wire, we place them in our catalogue, so you will know where to get them when you want them.

We can furnish the two for....**\$1.15**

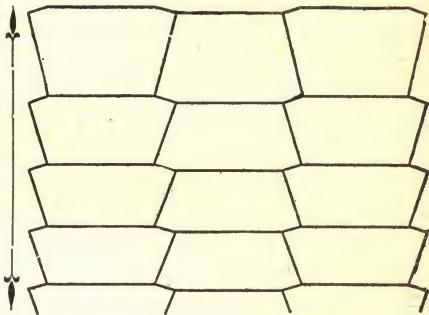
By mail.....**\$1.30**

WHY OUR FENCE IS NOT AFFECTED BY COLD.

In order to understand this subject well the reader should first read the article on expansion and contraction in the back of this pamphlet. The two cuts below show the difference in the form of the meshes which is caused by the effect of heat and cold.



Effect of extreme cold.



Effect of extreme heat.

(The difference is slightly exaggerated to show the principle more plainly.)

Under the effect of extreme heat it will be noticed that the twists stand considerably in a slant, which is their natural position, as they are drawn into this by the tension on the stay wire while the fence is being woven. When the horizontal wire begins to shorten under the effect of cold, the extra length is supplied by the twists straightening out a little and coming more into the form describing the effect of extreme cold. If you were to take a string, say 10 feet long, stretched between two given points, and tie a supporting string to it about every foot, and hang a light weight midway between each supporting string, the string would naturally assume an upwardly inclined slant from the weight towards the supporting strings. If you were to draw on one end of this string the weight would be slightly raised and the partial straightening out of the slants would add to the total length of the string, but as soon as the end of the string is released the weight will draw it into its original position. Thus the limp string practically becomes a spring, applying this principle to our fence. We see that every horizontal wire is practically a spring. The work of the supporting string is accomplished by the stays connecting the wire with the one above it, and the work of the

weights is accomplished by the stays connecting it with the wire below itself. The same result might be obtained by the use of a coiled spring drawn out till it became nearly straight, but the coiled spring when drawn out entirely straight by an excessive strain has nothing to draw it back into its former position, while the principle just described (which is practically applied in our fence) has the cross bars or stays drawing the horizontal wire back into its original position, thus retaining its original springiness, which is just as ready to repel the shock of an unruly intruder as it is to yield to the cool demands of contraction.

WILL OUR FENCE WORK ALL RIGHT ON HILLY GROUND?

We have answered the above question so often by letter, that we concluded to explain the subject here.

In putting up the fence on hilly ground the most important feature is to set the end posts perfectly plumb, and to fasten the fence to the end posts so that the stays will also be plumb. The common error is to set the post so it leans down hill. In putting up the fence over a hill fasten the fence on top of the hill and put stretchers on each end, and in passing over a valley fasten the fence at one end and put the stretchers on the other end, and wind till the fence is drawn up considerably from the ground, according to the steepness of the hill; then draw the fence down by placing your weight on the lowest cable. If it requires too much force to bring it down loosen the stretchers a little. If it comes down too easy tighten up a little before drawing it down entirely. In drawing over a hill staple the top cable first, and in drawing down into a valley staple the bottom cable first. With a little experience you will become accustomed to the work, so you would just as soon put up a fence on hilly as on level ground. In fact, we have known some to prefer the hills. Experienced persons can put up a fence across a hollow without stretchers and do a good job. They get all the strain by drawing it down in the center after fastening both ends.

AGENTS PUTTING UP THE FENCE.

All of our agents should be prepared and willing to put up the fence all complete, for any customers who may choose rather to have the fence put up than put it up themselves. Of course putting up the fence is not free gratis, but a suitable compensation should be agreed upon (from 5 to 10 cents a rod, according to circumstances). Never should agents add the charges of putting up the fence to the price per rod. Sell the fence at the listed price (no more, no less), and charge for putting up the fence whatever is right and reasonable.

HOW TO MAKE A SPLICE.

It may, under various circumstances, become necessary to splice two wires together. Bring the two ends about six inches past each other and grab both the wires in the middle with the holder; then wind the projecting end around the other wire with the pliers. Then grab the wound up part with the holder and wind the other projecting end in the same manner. This kind of a splice is practically as strong as any part of the wire. In splicing two pieces of fence together be careful to have the mesh in which the splice occurs the same length as the others, and to have each wire the same length between the stay. A well made splice in a string of fence would scarcely be noticed except by one who knows where to look for it.

THE POSTS.

We often receive inquiries asking, "How far apart should the posts be set?" This, of course, depends on circumstances. For a common field fence the posts should be set about $16\frac{1}{2}$ feet apart, or even further if posts are very scarce. For a lot fence it is good to have the posts 8 or 10 feet apart. For a portable fence they may be put 20 to 40 feet. Generally speaking, we may say you can put the posts as far apart for our fence as for any other kind. When they are put more than 25 feet apart there should be a wooden stay put between every post; the stay should be about the strength of a 2-inch square, and should reach from the ground to the barbed wire or cable above the fence. When the posts are set more than eight feet apart there should be a stake driven into the ground, and the lowest cable stapled carefully to it; if more than $16\frac{1}{2}$ feet there should be two stakes between each post. Briefly, the bottom cable should be held down every eight feet.

In regard to the depth that the posts should be set that depends considerably on the soil, as in some kinds of soil the frost will lift the posts out of the ground if they are set shallow. But as a general thing there is not so much strain on the posts as in a board or picket fence, as a wire fence breaks no wind, consequently there is almost no strain on the posts and they may be nearly rotted off and still stand erect, while the wind would lay a wooden fence flat.

STAPLES.

Do we furnish staples? No! Our reasons for not furnishing them are, they are too much trouble to ship, and you can buy them very reasonable at your hardware store.

BARBED WIRE.

There are many men who do not like the barbed wire because it is a thing to be admired, but they know of nothing cheap enough to take its place. It does well enough for cattle, but for horses it is not worth having, unless it is used in connection with something else; nor does it turn hogs satisfactorily. Undoubtedly it has had its mission, as the West could not be what it is without the barbed wire. But the good it has done has been largely modified by the untold injury it has done to stock. For safety it should always be kept tight, and not less than four feet from the ground.

IS IT GALVANIZED?

All our fencing (lawn and field) is made of best quality annealed, thoroughly galvanized steel wire, made specially for our use.

REMARKS.

There should be a cable or barbed wire put above all our fences to prevent stock from bearing down on the fence and bending the stays, which makes the fence appear sagged.

If you want your fence to turn hogs don't put it more than two inches from the ground, or they will root under it.

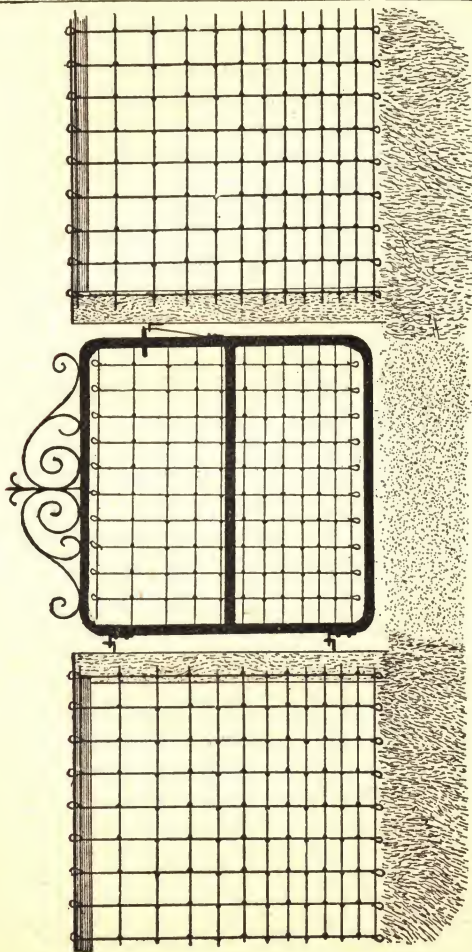
The little windlass stretchers should always be put on as directed, as no barbed wire stretcher or any other common means of stretching will draw this fence tight enough.

Set the end post as firm and solid as you can, and don't call it "good enough" till it is as good as you know how to make it.

Should a runaway team run into your wire fence and tear it seriously cut out the torn part and splice in a new piece, or draw the end back enough to splice it.

IT IS ALL A MISTAKE.

The fact that we furnish stretchers (which remain on the end post) to put up our fence, has misled some to think that it is an adjustable fence that will need to be tightened up whenever it gets warm, and loosened whenever it gets cold. This is all a mistake. Our fence has all the springiness and self-adjusting qualities that it needs; "enough is sufficient, too much is harmful." If it needed more we could easily remedy the difficulty by a slight change in our machines. We do not deny that a little tightening up about once a year is a good policy, but it will never be necessary to loosen it, and there are some wire fences in the country that would not look any the worse if they were wound up a little, even if they are claimed to be self-regulating.]



OUR LAWN FENCE.

(PATENT ALLOWED)

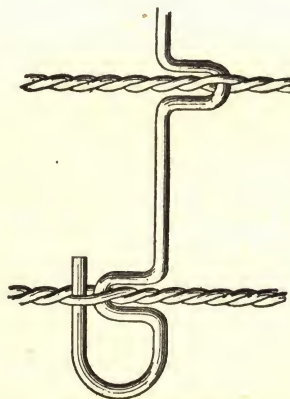
This style of fence is especially adapted for fencing door yards, lawns, gardens, cemeteries, and wherever an ornamental fence is desired. (For description of gate see page 25.)

A UNIVERSAL DEMAND.

Ever since we have been in the fence business we have been receiving numerous inquiries asking for a fence woven close enough to turn chickens, rabbits, etc, and made of heavy wire, so it will be strong enough to turn large stock. In order to meet this universal demand we have designed the lawn fence. There are many ornamental fences on the market that are all right for fencing in cities, where a fence to look at only is wanted, but the farmer wants an ornamental fence that will stand the rough usage of farm stock, and make itself useful as well as ornamental. For a combination of strength, usefulness and beauty we cheerfully recommend our lawn fence.

HOW IT IS MADE.

(Lawn Fence.)



(Half Natural Size.)

This cut shows the general construction of the lawn fence better than we can describe it. The object of having the crimps on opposite sides is to prevent the stay from turning. The top bar is composed of four No. 14 wires twisted together.

SIZE OF WIRE—(Lawn Fencing.)



No. 10 WIRE.



No. 14 WIRE.

This cut shows the size of wire used in lawn fence. The stay is composed of No. 10 wire, and has an eye bent on each end to give a smooth finish; also a deep crimp to correspond with each of the horizontal bars or cables, which are composed of two No. 14 wires twisted together.

DESCRIPTION OF THE DIFFERENT STYLES IN LAWN FENCES.

G-36x4. This is the fence shown on page 23 for a front yard fence. We recommend this in preference to any other style, as it is not too high to look well, and yet it affords ample protection. It is composed of thirteen bars, spaced as follows: 2, 2, 2, 2, $2\frac{1}{4}$, $2\frac{1}{4}$, $2\frac{1}{2}$, $2\frac{3}{4}$, 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$ inches. The stays are put in every four inches. This makes the mesh 2x4 at the bottom and $4x4\frac{1}{2}$ at the top. It stands about 39 inches high when put up.

Price per 100 feet\$10.95

D-42x4. This style has found a very ready sale, and is used mostly for yard fencing, where the 36-inch fence is not considered high enough. It is composed of fourteen bars, spaced as follows: 2, 2, 2, 2, $2\frac{1}{4}$, $2\frac{1}{4}$, $2\frac{1}{2}$, $2\frac{3}{4}$, 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5 inches. The stays are put in every 4 inches. It stands about 45 inches high when put up.

Price per 100 feet\$12.00

A-48x4. This is used mostly for garden fencing, or between house and barn lots. This height is best adapted for a chicken-park. It is composed of fifteen bars, spaced as follows: 2, 2, 2, 2, $2\frac{1}{4}$, $2\frac{1}{4}$, $2\frac{1}{2}$, $2\frac{3}{4}$, 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, 6 inches. The stays are put in every 4 inches. It stands about 51 inches high when put up.

Price per 100 feet\$13.25

HOW TO PUT UP THE LAWN FENCE.

Be careful to put the lawn fence up in a workman-like manner. An unskilled tailor will make an unbecoming suit from your finest broadcloth; so will an unskilled workman make a bad looking fence, although you furnish him with material that would have produced a thing of beauty if properly put up. Use sawed posts, with iron or wood railing. Be careful to set all the posts perfectly plumb. If the railing cannot be put on level, make the inclines as graceful as possible. Be careful to have the stays plumb, and stretch all the wires evenly. It adds much to the good appearance of the fence to have posts and railing painted white,—or, if iron railing is used, paint it black.

LENGTH OF ROLLS—(Lawn Fencing.)

For the convenience of our customers we make the lawn fencing in rolls of 50, 75, 100 and 200 feet. We will make extra lengths, not less than 50 feet, at 10 per cent. extra. Care should be taken not to have any one roll much over 200 feet in length, as the large rolls are more liable to be damaged in shipping than smaller rolls.

OUR GATES.

Our gates are a first-class article, and need only to be seen to be appreciated. The frame is made of angle steel, to which are attached steel hinges and a latch having an arm projecting on either side for convenience in opening. All our gates have an intermediate bar (as shown in cut) made of same size angle steel as the main frame, and all heavy gates have an angle steel brace from the bottom, at the back end, to the top at the front end. This makes the gates very strong and rigid. The frame work is painted black, and the body is composed of lawn fence, with the stays only three inches apart. The fence being galvanized, gives the whole a neat appearance. (For cut of gate, see page 23.)

GATE PRICE LIST.

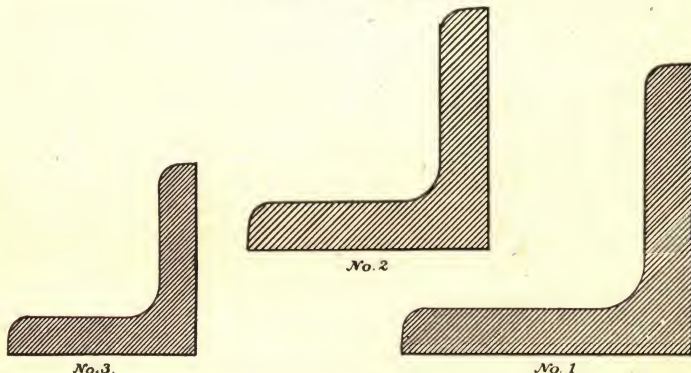
| Width in feet. | Height in Inches. | | | Width in feet. | Height in Inches. | | |
|-------------------|-------------------|---------|---------|-------------------|-------------------|---------|---------|
| | 36 | 42 | 48 | | 36 | 42 | 48 |
| 3 | \$ 3.50 | \$ 3.75 | \$ 4.00 | 6 | \$ 5.50 | \$ 5.75 | \$ 6.00 |
| 3½ | 3.75 | 4.00 | 4.25 | 8 | 6.75 | 7.00 | 7.25 |
| 4 | 4.00 | 4.25 | 4.50 | 10 | 8.50 | 8.75 | 9.00 |
| 5 | 4.75 | 5.00 | 5.25 | 12 | 9.75 | 10.00 | 10.25 |

When two gates are wanted to form a double gate, be careful to state this plainly in your order, and we will fit with fastening suitable for double gates.

Gates 3, 3½ and 4 feet wide are kept in stock, larger sizes are made to order only.

All gates are sent with plain top (without ornament) except when ornament is mentioned in the order. Price, 75 cents.

GATE MATERIAL.



(These cuts show the end view, correct size of material used in gate frames.)

Gates of 3 feet, 3 1-2 feet and 4 feet in length are made of angle steel No. 3.

Gates of 5 feet, 6 feet and 8 feet in length are made of angle steel No. 2.

Gates of 10 and 12 feet in length are made of angle steel No. 1.

THE GATE ORNAMENTS.

All gates will be sent with plain top (without ornament) except when the ornament is ordered. The ornament beautifies the gate very much, but it is useful as well as ornamental, as it prevents dogs from climbing over the gate, and is very inconvenient for chickens to alight upon.

Price75 cents

"THE OLD VIRGINIA RAIL FENCE."

This method of fencing is still practiced in many sections of the country, although it is quite expensive. When the rails were made of old timber they lasted from twenty to forty years. Now they are made of young timber and last only from five to ten years, besides they take up seven feet more land than a straight fence would. In the "fence corner" is the place where the weed seed is raised to stock the rest of the farm with. They should be mowed at least once a year, which is a very hard job. Many farmers tack a barbed wire to the rail fence when it becomes so rotted down that it "needs protection," but this is a constant source of trouble, and many valuable horses have been lost by this practice. Taking into consideration the short time it lasts and the trouble it is to keep it in repair, as well as the value of the land that it occupies, it is a very expensive fence, although the first cost may be less than that of other styles.

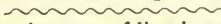
EXPANSION AND CONTRACTION IN WOVEN WIRE FENCES, AND HOW OVERCOME.

WHAT A PRACTICAL, GENERAL PURPOSE FARM FENCE SHOULD BE, AND THE THEORY OF ITS CONSTRUCTION.

Since it is generally admitted that the coming fence will be made of galvanized wire, it is only proper that the farmer should understand the science and principles relating to the woven wire fence. In order to understand the subject thoroughly we should study the requirements of a general purpose farm fence. An old farmer, on being asked what a legal fence was, replied: "It must be horse high, bull strong and pig tight." Although that seems to be all that can legally be required of a fence, the farmers will require more. In the first place the farmer will want it to be inexpensive, to take as little space as possible, not to shade his crops, not to be a harbor for rats, mice and a thousand other living things which prey on his crops, not to burn up in a prairie fire or rot down in damp weather, and last, but not least, to adjust itself to heat and cold, so it will stand up straight and not look weak in the hot days of summer, and still have spring enough in itself not to break when mercury retires to the little ball at the bottom of his tube.

It is well known that iron and steel will get larger and longer or *expand* as it gets warmer, and *contract* (get smaller and shorter) as it gets colder, (for convenience we will refer to this by its scientific name—*expansion* and *contraction*). The standard thermometers indicate the temperature simply by a hand attached to two bars of metal, one of which expands more than the other under the same temperature. This variation is measured and multiplied by the hand which shows it on the face of the instrument, hence if expansion and contraction is accurate enough

for a thermometer we may depend on its making its effects known in other things. Although this variation in length is much less than is sometimes supposed, it is enough to cause serious results when its law is not obeyed. It would be difficult to make a table showing the exact variations under the different degrees of natural temperature, and of the different sizes and the differently tempered wires; but to illustrate, and as a basis to figure on, we will consider it to be one-eighth of an inch to every ten feet (which is not far wrong) from extreme summer heat to extreme winter cold. On this basis a wire forty rods long, stretched tight on a hot day, would become eight and one-half inches shorter in cold weather. This is sufficient to tear the wire in many cases, especially if it has a flaw or a poor place of any kind.

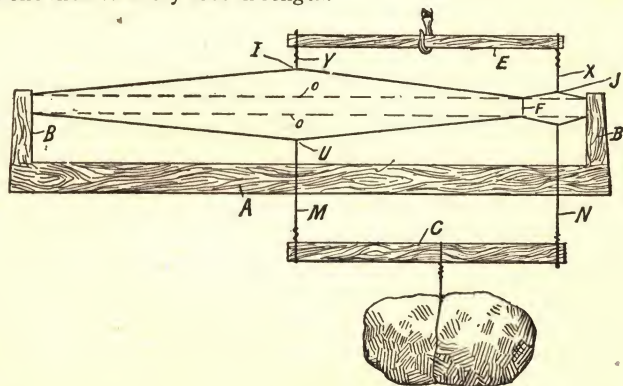
The only remedy seems to be in getting the wire out of a straight line. This may be done by weaving it into certain forms of meshes, by twisting several wires together, by coiling the wire or by a series of crimps, like this  for illustration. Any form of mesh that holds the wires out of line is safe against the danger of being broken by contraction. For instance, we have never heard of the ordinary netting fence being broken by contraction, although it is very common to hear the complaint that it cannot be made rigid by stretching, the wires being too much out of line; consequently stretching draws them more into line and causes the fence to appear sagged. Therefore it appears that the wires should be nearly in line to insure rigidity, but not entirely in line to prevent danger of breaking by contraction.

If fifty wires were loosely strung along a line of posts it would be an easy matter for a man to spread them enough to pass through, but if ten wires were tightly stretched along a line of posts they would nearly make a fence for the time being. The only difficulty would be their liability of being broken by contraction, and as they would only be supported at every post stock could easily spread them enough to pass through.

The following sketch illustrates a test showing the importance of stays or cross bars in the wire fence.

A is a bar supporting the short posts B B, on which are stretched two wires three inches apart, whose position is indicated by the dotted lines o o. F is a cross bar, or tie wire, holding the two wires just three inches apart; the cross bar F is fastened just one foot from the post B, and the distance between the cross bar F and the opposite post B is eight feet. E is a wooden beam, to whose respective ends are fastened the wires X and Y, which are in turn fastened to the top wire at I and J, and C is a wooden beam to whose respective ends are fastened the wires M and N, which are in turn fastened to the lower wire at the points U and R. To the middle of the beam C is fastened a weight

sufficient to draw the wire into the position indicated. The top wire is drawn four inches up from its proper place at the point I, but only one-half inch at the point J, although the strain is the same at both points. The lower wire is drawn down four inches at the point U and one-half inch at the point R. This leaves the short mesh four inches and the long mesh eleven inches, both of which were formerly three inches. This shows that a certain strain will press a tightly stretched wire out of position one inch to every foot in length.



Applying this principle to the wire fence we find that if a number of wires were stretched three inches apart on a row of posts set eight feet apart, a given strain would cause them to spread to eleven inches, while the same strain applied to a woven wire fence, stretched to the same tension and having cross bars every foot, with horizontal wires three inches apart, would only spread the horizontal wires to four inches. If the cross bars were two feet apart the same strain would spread them to five inches; if three feet, six inches; if four feet, seven inches; if five feet, eight inches, and so on. Thus it seems that the theory of the woven wire fence briefly expressed is this: *Horizontal wires, tightly stretched to insure rigidity, placed a little out of line to form a cushion for the slow, but sure, force of expansion and contraction, combined by means of vertical stays to prevent spreading of the horizontal wires.*

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Agents Wanted.

We want a reliable and enterprising man in every county to take the agency for our fence (Farmers preferred), if we are not already represented in your county. Send for our pamphlet entitled "Hints to Agents, or How to Sell Fence."

LORD BROS.,
MENDON CENTRE,
State Agents for New York.

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Opinions of the Press.



Nothing gives so much trouble and annoyance as a poor fence. Barbed wire is continually cutting the stock, and a board fence is too expensive. However, the Keystone Woven Wire Fence Co., of Tremont, Ill., have met a popular want, and are manufacturing a superior woven wire fence, being both inexpensive and perfectly safe to guard stock. Those using the fence speak very highly of it.—*Prairie Farmer, Chicago.*

We are always glad to place before our readers anything that is an improvement in the way of fencing. The handsome advertisement of the Keystone Woven Wire Fence Co., Tremont, Ill., represents a fence of this kind. In beauty, effectiveness and economy it commends itself to the intelligent farmer.—*National Stockman and Farmer, Pittsburg.*

There is a demand all over the country, and particularly where barbed wire fences are used, for an inexpensive fence that will be strong, durable and safe. The Keystone supplies this demand fully. It will turn any kind of stock without harming it in the least. There are many kinds of wire fencing, but none that can compete with the Keystone in price and quality.—*The Homestead, Des Moines, Iowa.*

We believe this fence to be one of the best in the market to-day.—*Rural Life, Waterloo, Iowa.*

The problem of successful fence making can be solved by addressing the Keystone Woven Wire Fence Co., of Tremont, Ill.—*Prairie Farmer.*

American ingenuity has solved the fence problem with the woven wire fence. The invention of the wire fence machine that weaves this fence so rapidly and so beautifully, has given to American farmers a practical stock fence that has already gained a wide popularity. It is one of the improvements of the age. Cheap, practical and meritorious.—*Western Agriculturist and Live Stock Journal.*